

CASE STUDY



SF SANTA FE
COLLEGE

OVERVIEW

Named the nation's top college by the Aspen Institute for 2015 to 2016, Santa Fe College in Gainesville, Florida, offers associate degrees and bachelor degrees in practical fields like nursing and industrial biotechnology. Santa Fe College is renowned for offering career and technical education programs that lead to four-year university transfers and jobs. The college serves approximately 22,000 full-time students and 10,000 part-time students.

REQUIREMENTS

- High network reliability through improved resiliency and redundancy
- Support the college's expanding requirements for rich media for online digital learning, cloud applications and IP phone systems
- Higher throughput and performance for student population, faculty and administrative staff
- Centralized network management

SOLUTION

- Ruckus ICX switches
- Long distance stacking
- Ruckus Campus Fabric technology

BENEFITS

- Network convergence and consolidation with full redundancy
- Expanded functionality to support new user services, network automation, advanced security and other applications used campus-wide
- Simplified network management and auto-provisioning and configuration of switches

RUCKUS HELPS SANTA FE COLLEGE ELEVATE STUDENT EXPERIENCE

Santa Fe College in Gainesville, Florida, stands apart from many community colleges. Awarded the Aspen Prize for Community College Excellence in 2015, Santa Fe College prides itself on fast tracking its students to four-year universities and well-paying jobs in everything from trades to technology. At a rate far above the national average, 62 percent of the college's full-time students complete their studies or transfer to a four-year institution. The student population at Santa Fe College numbers over 20,000 full-time students and 10,000 part-time students.

Providing sufficient network bandwidth to meet the changing digital needs of its student body, faculty and administrative staff became a top priority for Santa Fe College. The network supports 1,200 lab computers plus faculty and administrative offices. About a year and a half ago, Steve Williamson, systems network manager and Dmitry Shevchuk, network administrator decided to launch a major initiative to completely transform the college's aging network, which consisted of outdated Alcatel switches and Cisco routers across 28 campus buildings, 2 data centers and five remote locations.

On their wish list were items like increasing bandwidth, improving network reliability and greater bandwidth to accommodate video and other rich media used in online courses and capabilities that would enable greater automation, fast, secure access to cloud applications and the ability to upgrade the old analog and digital phone system to an IP telephony system.

CHALLENGES

A forward-thinking educational institution, Santa Fe College was aware that it had outgrown its network—consisting of a combination of routers and Layer 2 switches with static VLANs and static routing. The network required manual configuration of each router and constant maintenance which had become increasingly unreliable. Often, an entire network stack would lose its configuration and result in loss of connectivity and periods of downtime.

This was true not only across campus, but also at the college's two data centers, which consisted of two big Alcatel switches, one in each location, plus six more switches for servers—an interconnected Layer 2 network. "This wasn't the best solution. We needed something that was more manageable with better resiliency and redundancy because our setup was unpredictable. Every day was a gamble, and equipment would go down way too often," noted Dmitry. "We wanted a full Layer 3 switching solution that didn't require Spanning Tree Protocol. Plus, maintenance on the existing network was labor intensive and time-consuming because we had to go to every building on campus to manually reconfigure switches. We needed something much simpler to manage."

In addition, the network lacked the advanced functionality the college required to accommodate its digital transformation. As Williamson points

out, “We needed a faster network to keep up with the times. Over the last 10 years, we’ve had a steady growth in distance learning, particularly in the use of video in the learning space for students who are far from campus. Also, as we started using third-party cloud services like Microsoft Office 365, we found that we needed better throughput.”

SOLUTION

After evaluating a number of vendors, Williamson and Dmitry selected Ruckus based on the affordability, flexibility and the feature set of fixed form factor Ruckus ICX switches. “We tested them all and tried to implement everything we could think of,” explained Dmitry. “Ruckus worked out of the box and fully met our expectations.”

The college maintains two fully redundant data centers 500 meters apart. A pair of ICX 7750 switches serve as the enterprise-grade core in each data center. Additional ICX 7250 switches provide top-of-rack connections for servers and storage. Leveraging Ruckus Campus Fabric, the ICX 7250 switches serve as “port extenders” for the ICX 7750 core allowing all the switches spanning both data centers to be managed as a single IP address. With multiple links, including fiber between the data centers, the fabric delivers a highly resilient network.



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DMITRY SHEVCHUK

Santa Fe College, Network Administrator

“It’s all a single entity—one logical switch that connects the two data centers with redundant links and no single point of failure. The data centers are not just available for failover, they are both in full operation,” says Dmitry. “If a cable gets disconnected, it no longer means the whole building goes down. We had zero redundancy before, and now we’re working toward 100 percent redundancy.”

An additional 200 ICX 7250 switches are deployed in 30 buildings across the campus. Dmitry and his network pros can easily add capacity and performance where needed by adding more switches. Because ICX switches support stacking over standard Ethernet cables and optics, switches installed in different closets throughout a building can be configured as a single stack. “Because of the ability to stack up to 12 switches in a single stack, as well as this long-distance stacking, we’re able to manage each building as a single logical unit, minimizing the number of network objects that we need to maintain,” says Dmitry.

With the new rich feature set of the Ruckus ICX switches, the network team can fully automate maintenance and configuration processes, managing them from a central dashboard. According to Dmitry, there is less potential for human error in configuration with Ruckus: “We’ve dramatically reduced the number of logical devices we need to manage. Life for the network team is getting much easier. We’re looking forward to automatic configuration and simplified management. For example, blocking access can be done from a centralized management system. In the past, changing the network access list was painful because you had to make that change for every building and its corresponding routers. Now we can introduce these types of changes much more quickly.”

Dmitry and his team also have had the opportunity to implement stronger security measures to protect users against advanced threats, like the highly publicized and potentially dangerous WannaCry and Petya ransomware variants.

What’s ahead for Santa Fe College? The next step is to replace the old switches with ICX switches and network the five or six remote sites within a 30-mile radius of Gainesville to the data center. Dmitry and Williamson have already moved away from a wireless service provider model and are taking charge of wireless themselves, integrating it into the Ruckus network. Switching to an IP phone system and adding it to the network is another project on the horizon.

“Ruckus is enabling us to move toward a truly converged network,” says Dmitry. “And by doing so, I believe we can improve the educational experience at Santa Fe College, especially with digital learning.”

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